LENS

DESCRIPTION

The invention relates to a lens in accordance with the preamble of claim 1, a use of said lens and a method of manufacture.

J59-177506A describes lenses of a projection objective wherein the two external lenses of the objective have a supporting edge which projects towards the plane lens surface and is designed as stepped. The shoulder thereby produced is used for support on a further lens, namely a biconvex lens, with the aim of specifying a distance between the lenses.

JP59-157603A shows two lenses which have supporting edges having projections with inclined surfaces provided on their outer circumference. As a result of this configuration, importance is placed on high precision and stability of the edges.

In this respect, the supporting edges in both citations are determined and laid out by the mounting position together with further lenses.

Such lenses have conventionally been pressed as aspherical shapes on one side and ground plane on the other side. This grinding process, which is followed by another polishing process, is carried out after passage through a cooling furnace. The passage through a cooling furnace is necessary to specifically cool the still hot blank so that stresses inside the lens can be removed. In this case, however, the blank must be placed on a conveyer belt whereby the supporting surface of the lens is disadvantageously influenced. However, if the passage through the cooling

furnace is followed by a grinding process, these surface deformations are eliminated.

However, this method has the disadvantage that additional grinding and polishing processes are required.

The object of the invention is to provide a lens and a method of manufacture in which such a finishing process such as grinding and polishing is dispensed with. The object also relates to the specification of a particular use.

This object is solved by a lens which is pressed bright on both sides. As a result of said bright pressing on both sides, corresponding finishing processes are dispensed with. Said bright pressing is thereby possible because a supporting edge is present which has the advantage that when placed on a base, the lens abuts exclusively with this supporting edge and contact of the plane surface and the base is avoided so that the plane lens surface is not damaged. A lens pressed bright on both sides with a supporting edge can thus be placed without any problems on a conveyor belt, for example, of a cooling furnace.

The supporting edge is preferably moulded onto the outer circumference of the lens. Since the holding edge is moulded on the lens externally circumferentially and the supporting edge is moulded on this holding edge, the supporting edge is located outside the ray path and thus outside the optically active surface of the lens.

The thickness D of the supporting edge is at least 0.2 mm. This minimum thickness is required so that any unevenness on the supporting surface, especially on a cooling belt, does not lead to any contact with the plane surface.

The width B_1 of the supporting edge is preferably less than or equal to the width B_2 of the holding edge.

Preferably, a lens pressed bright on both sides comprising a curved surface, a plane surface and a holding edge moulded on the lens edge on which is moulded a supporting edge projecting towards the plane surface, is used for projection headlights for motor vehicles.

The method for the manufacture of a lens comprising a curved surface and a plane surface envisages that a holding edge is moulded on the lens edge and a supporting edge which projects towards the plane surface is moulded on the holding edge and that both surfaces are pressed bright.

The lens is preferably placed on the supporting edge during the cooling process.

An exemplary embodiment of the invention is described in detail below with reference to the drawings.

In the figures,

Fig. 1 shows a section through the lens according to the invention and

Fig. 2 shows the lens in the built-in state.

Figure 1 shows a cross-sectional view of the lens 1. The lens has an aspherical surface 2 and a plane surface 3. Moulded onto the lens edge is a holding edge 4 which in its outer area goes over into a supporting edge 5 which projects towards the plane surface 3. The lens only lies on a base 6 by means of the supporting edge 5 so that the plane lens surface 3 cannot be damaged. The supporting edge 5 projects towards the surface 3 by its thickness D of around 0.3 mm. The width B_1 of the supporting edge 5 is

less than the width B_2 of the holding edge 4 so that the optically active area of the plane surface 3 is not restricted. If the lens 1 is pressed bright on both sides, it can be stored and transported without any problems after the bright pressing process or it can be supplied to further process steps with regard to cooling without the lens surface being damaged thereby.

Figure 2 shows the lens 1 in the built-in state, e.g. as a projection headlight of a vehicle. A holder 10 embraces the holding edge 4 on the side facing the aspherical lens surface 2. Said holder substantially consists of a sheet-metal ring having flaps 12 stamped out on its circumferential wall 11, said flaps being curved inwards. A circlip 13 is arranged between the flaps 12 and the supporting edge 5. By this means the lens is securely held. The advantage is that the supporting edge 5 is also used for building in and the lens surface 3 is not adversely affected by the holder.